

REMARKS

Applicants submit this Reply in response to the non-final Office Action mailed April 9, 2010. Prior to this Reply, claims 12-22 were submitted for examination, of which claim 12 is independent. By this Reply, Applicants have amended claims 12, 14, 16, 18, 19, and 22 and canceled claims 13, 15, and 21 without prejudice or disclaimer. Thus, claims 12, 14, 16-20, and 22 are submitted for examination on the merits. No new matter has been added.

In the Office Action, the Examiner rejected claims 13-16, 18, 19, 21, and 22 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention; rejected claims 12, 13, 17-20, and 22 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,876,804 ("Chen"); rejected claim 14 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of U.S. Patent App. Pub. No. 2003/0010066 ("Sasaoka"); and rejected claims 15, 16 and 21 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of U.S. Patent No. 6,240,748 ("Henderson").

Applicants respectfully traverse all pending rejections for at least the reasons discussed below.

Rejections Under 35 U.S.C. § 112, Second Paragraph

In the Office Action, the Examiner rejected claims 13-16, 18, 19, 21, and 22 under 35 U.S.C. § 112, second paragraph. Specifically, the Examiner asserts, "Claim 13 recites the limitation 'the extension' in lines 3 and 4. There is insufficient antecedent basis for this limitation in the claim." Office Action at 2.

By this Reply, Applicants have amended independent claim 12 to incorporate some features of canceled claim 13, including “a length of each transition zone” and “a length of the zone of substantially constant amplitude.” Support for these amendments can be found, for example, in Figures 3A-C and the corresponding text in the specification at pages 11-16.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the claim rejections under 35 U.S.C. §112, second paragraph.

Rejections Under 35 U.S.C. § 102(e)

Applicants respectfully traverse the rejection of claims 12, 13, 17-20, and 22 under 35 U.S.C. § 102(e) as being anticipated by Chen. To properly establish that Chen anticipates Applicants' claimed invention under 35 U.S.C. § 102, every element of the rejected claims must be found, either expressly described or under principles of inherency, in that single reference. Furthermore, “[t]he identical invention must be shown in as complete detail as is contained in the ... claim.” M.P.E.P. § 2131, quoting Richardson v. Suzuki Motor Co., 868 F.2d 1126, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed. Cir. 1989).

Chen fails to disclose every element recited in amended independent claim 12. Amended independent claim 12 recites, in part, “imparting . . . a spin [to an optical fiber] about its axis with inversions of the spin direction, . . . the spin being imparted according to a bidirectional spin function including zones of substantially constant amplitude followed by zones of transition where the inversions take place, a length of each transition zone being less than 20% of a length of the zone of substantially constant amplitude preceding it.” Nowhere does it appear Chen discloses such features.

As discussed in Applicants' specification, spin inversions performed on optical fibers during drawing can have a negative impact on a fiber's final optical characteristics. In particular, within the inversion zones - where the spin rate is lower than the peak or average spin rates - localized increases of polarization mode dispersion ("PMD") can develop. Applicants' specification explains:

As concern the optical aspects, the Applicant has found that spin inversions (i.e. variations of the direction of spinning) have a deleterious effect on PMD. This is because, in the zones of spin inversions, where the spin rate is low, the birefringence modulus is not sufficiently averaged to prevent spreading of the pulses. Therefore, spin inversions cause a local increase of PMD. The more extended are the zones of low spin rate, the higher is the PMD. . . . The Applicant has verified that the typical bi-directional spin profiles . . . are designed irrespective of said phenomenon, in particular the zones of inversion are too high in number and have a too high extension, and the increase of PMD so generated is therefore relatively high.

Specification at page 4, lines 4-19. To address this issue, Applicants claim a method wherein the length of each inversion zone is less than 20% of the length of the preceding substantially constant spin zone.

As noted by the Examiner in the Office Action, "Chen discloses imparting the spin according to a bidirectional spin function that is trapezoidal including zones of substantially constant amplitude and zones of transition where the inversion takes place, wherein the extension of the zones of substantially constant amplitude is greater than the extension of the zones of transition (figure 7, col. 7, lines 39-61)." Office Action at 3. However, even assuming, *arguendo*, that Figure 7 of Chen depicts zones of substantially constant amplitude greater than zones of transition, nowhere does it appear that Chen discloses, "a length of each transition zone being less than 20% of a

length of the zone of substantially constant amplitude preceding it," as recited in amended independent claim 12.

Accordingly, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of amended independent claim 12 under § 102(e) based on Chen. Moreover, claims 17-20 and 22 (claim 13 having been canceled) depend from independent claim 12 and, thus, contain all the elements and limitations thereof. As a result, dependent claims 17-20 and 22 are allowable at least due to their corresponding dependence from independent claim 12.

Rejections Under 35 U.S.C. § 103

Applying 35 U.S.C. § 103(a), the Examiner rejected claim 14 as being unpatentable over Chen in view of Sasaoka; and rejected claims 15, 16 and 21 as being unpatentable over Chen in view of Henderson. However, a *prima facie* case of obviousness, the requirements of which are discussed below, has not been established for each rejected claim as amended.

To establish a *prima facie* case of obviousness, the prior art reference (or references when combined) must disclose all of the claim limitations, or the claim rejection must explain why the differences between the prior art and the claim limitations would have been obvious to one of ordinary skill in the art. See M.P.E.P. § 2141.

Applicants respectfully submit that the Office Action fails to establish a *prima facie* case of obviousness because, among other things, none of Chen, Sasaoka, or Henderson, either alone or in any combination, teaches or renders obvious the subject matter set forth in Applicants' claims.

Applicants have already established in the previous section that Chen fails to teach at least “a length of each transition zone being less than 20% of a length of the zone of substantially constant amplitude preceding it,” as recited in amended independent claim 12. The Examiner’s additional citation of Sasaoka against claim 14 and Henderson against claims 15, 16, and 21 fails to cure the deficiencies of Chen as these references similarly fail to teach or render obvious, “a length of each transition zone being less than 20% of a length of the zone of substantially constant amplitude preceding it.”

With respect to dependent claims 15, 16, and 21, the Examiner asserts that “Henderson teaches a well known periodic spin function in the art with a substantially constant amplitude zone that is square shaped (figure 11a), which has a transition zone that is instantaneous. An instantaneous transition zone essentially has a distance that is clearly lower than 10% of the distance of substantially constant amplitude zone preceding it, as can be seen in figure 11a.” Office Action at 5. However, Applicants respectfully disagree with the Examiner’s characterization of Henderson.

First, Applicants note that an “instantaneous” change from one spinning direction to an opposite spinning direction, as depicted in Figure 11a of Henderson, does not teach a “transition zone” at all, let alone a transition zone of any specified length. Rather, Figure 11a seems to teach only the use of opposite constant amplitude zones with no “transition” between them whatsoever.

Second, Henderson very clearly describes the spinning function depicted in Figure 11a as undesirable for reducing PMD in a fiber and, as a result, would lead one of ordinary skill in the art away from implementing such a function or spin inversion in

any optical fiber manufacturing process. Henderson discloses a spin function having sufficient harmonic content to achieve low levels of PMD in optical fibers. Henderson at Abstract. With respect to Figure 11a, in particular, Henderson states, "FIGS. 9-12 show representative spin functions which do (FIGS. 9-10) and do not (FIGS. 11-12) achieve sufficient variability for use in accordance with the invention." Henderson at col. 7, ll. 46-48 (emphasis added). The reference goes on to explain, "Functions like the frequency modulated profiles have sufficient harmonic content to provide the required variability, while the square [of Figure 11a] and triangular profiles do not. Based on these teachings, a person skilled in the art can readily determine whether any particular spin function which he or she wishes to use will or will not be successful in reducing PMD for a plurality of beat lengths." Id. at col. 8, ll. 21-28 (emphasis added). Thus, Figure 11a of Henderson is included only to provide an example of a function that would not be desirable if one is attempting to reduce PMD in a fiber. As a result, one of ordinary skill in the art, upon reviewing Henderson, would be led away from using an "instantaneous transition zone," in the words of the Examiner, or, in Applicants' view, no transition zone at all. Therefore, Henderson does not teach or render obvious, "a length of each transition zone being less than 20% of a length of the zone of substantially constant amplitude preceding it," as recited in amended independent claim 12.

Claims 14-16 and 21 depend from amended independent claim 12 and, thus, contain all the elements and recitations thereof. As a result, Applicants respectfully request that the Examiner reconsider and withdraw the rejection of claims 14-16 and 21 under 35 U.S.C. § 103(a) due at least to their dependence on an allowable independent claim. Moreover, for the reasons expressed above, the Examiner should also withdraw

the rejection of claims 15, 16, and 21 as being unpatentable over Chen in view of Henderson because the references would not have led one skilled in the art to the claimed subject matter.

Claim Scope

It is to be understood that Applicants are in no way intending to limit the scope of the claims to any exemplary embodiments described in the specification or abstract and/or shown in the drawings. Rather, Applicants believe that they are entitled to have the claims interpreted broadly, to the maximum extent permitted by statute, regulation, and applicable case law.

CONCLUSION

In view of the foregoing; Applicants respectfully request reconsideration and reexamination of this application, and the timely allowance of the pending claims.

If the Examiner believes that a telephone conversation might advance prosecution of this application, the Examiner is cordially invited to call Applicants' undersigned attorney at (404) 653-6435.

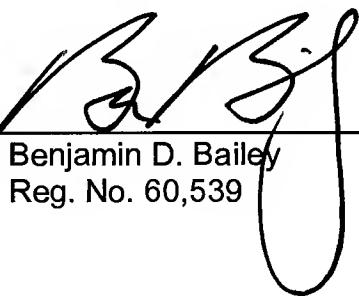
Applicants respectfully note that the Office Action contains a number of assertions concerning the related art and the claims. Regardless of whether those assertions are addressed specifically herein, Applicants respectfully decline to automatically subscribe to them.

Please grant any extensions of time required to enter this response and charge
any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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Dated: July 8, 2010

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